Interaction Type B1   Interaction Type B1

Interaction Type Bn

Interaction Type B2

TCAP User Service 1	...	TCAP User Service m	TCAP User Service 1	...	TCAP User Service m

Other Services

TCAP User Service Distributor A			TCAP User Service Distributor B		
Complete ASN.1 Transcoder	Partial ASN.1 Transcoder	...	Complete ASN.1 Transcoder	Partial ASN.1 Transcoder	

SCCP Service 1	...	SCCP Service n

Service Distributors and Transcoders

TCAP	Interaction Type C

SCCP Service Distributor

TCAP

SCCP Transcoder for TCAP User

SCCP Transcoder

SCCP Transcoder

Interaction Type A

Interaction Type D

MTP3 (and others, e.g. SIGTRAN) Transcoders

ASTP to/from SRF/STP Core

ASTP Dispatcher

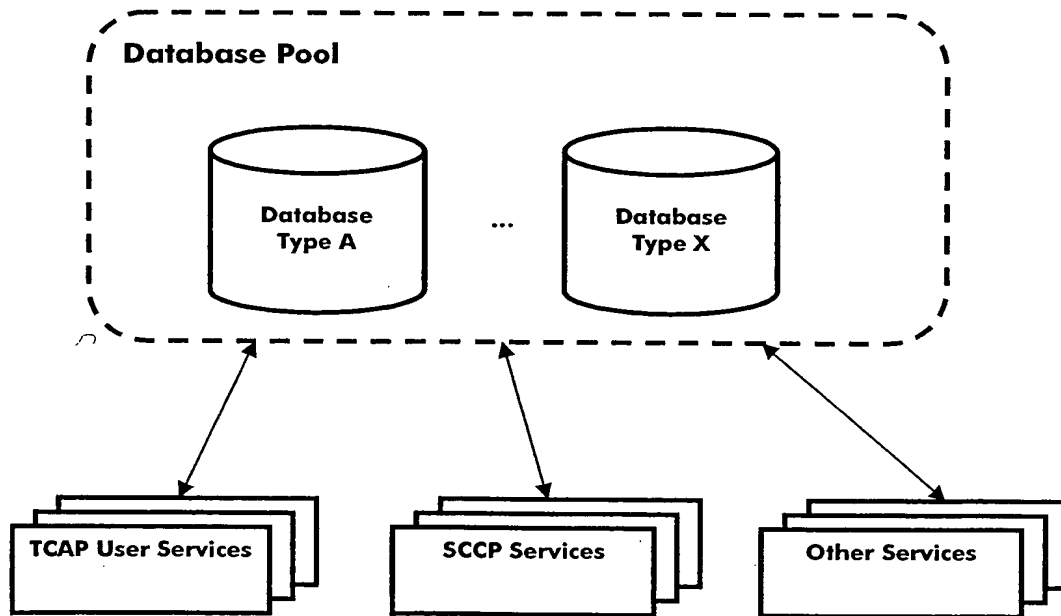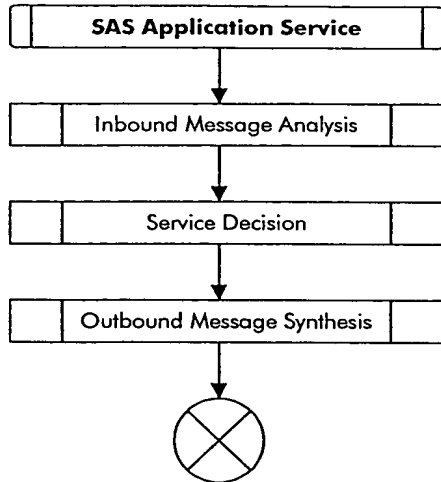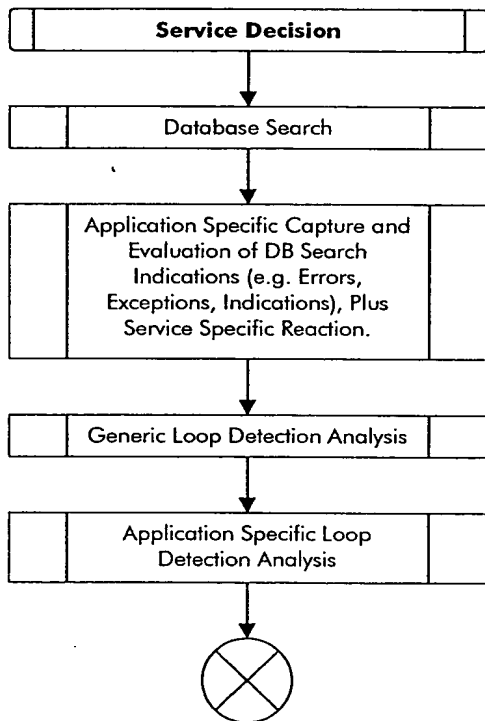|	
ASN.1:	Abstract Syntax Notation One
ASTP:	Advanced Signalling Transfer Protocol
MTP:	Message Transfer Part
SCCP:	Signalling Connection Control Part
SIGTRAN	Signalling Transport
SRF:	Signalling Relay Function
STP:	Signalling Transfer Point
TCAP:	Transaction Capability Application Part

Fig. 1

Database Pool

Database Type A	...	Database Type X

TCAP User Services	SCCP Services	Other Services

Fig. 2

SAS Application Service

↓

	Inbound Message Analysis	

↓

	Service Decision	

↓

	Outbound Message Synthesis	

↓

⊗

Fig. 3

Service Decision

↓

	Database Search	

↓

	Application Specific Capture and Evaluation of DB Search Indications (e.g. Errors, Exceptions, Indications), Plus Service Specific Reaction.	

↓

	Generic Loop Detection Analysis	

↓

	Application Specific Loop Detection Analysis	

↓

⊗

Fig. 4

Database Search

Single Number Table Query
(with Assembled Search Digit String)

Query
Result?

MATCH

Indicate MATCH in
SINGLE TABLE.

AMBIGUOUS

Indicate AMBIGUOUS
in SINGLE TABLE.

NO MATCH

Indicate NO MATCH
in SINGLE TABLE.

Error

Indicate Error in
SINGLE TABLE.

Request more
Digits Enabled?

No

Yes

Range Number Table Query
(with Assembled Search Digit String)

Query
Result?

MATCH

Indicate MATCH in
RANGE TABLE.

AMBIGUOUS

Indicate AMBIGUOUS
in RANGE TABLE.

NO MATCH

Indicate NO MATCH
in RANGE TABLE.

Error

Indicate Error in
RANGE TABLE.

Fig. 5

Generic Loop Detection Analysis

INRN detected in Inbound Digit Analysis? — No

Yes

SAS General Loop Detection State? — Disabled

Enabled

SAS Application Service Perform INRN Based Generic Loop Detection? — No

Yes

SAS DB Table Use Transition Time? — No

Yes

Current subscriber in transition? — Yes

No

Pair (Number Type, Portability Status) supports looping? [1] — No

Yes

Select INRN Slot in found Number Table Entry [2]

Received INRN = INRN from DB? — Yes

Indicate "Signalling Loop Detected".

Perform Loop Detection Action [3].

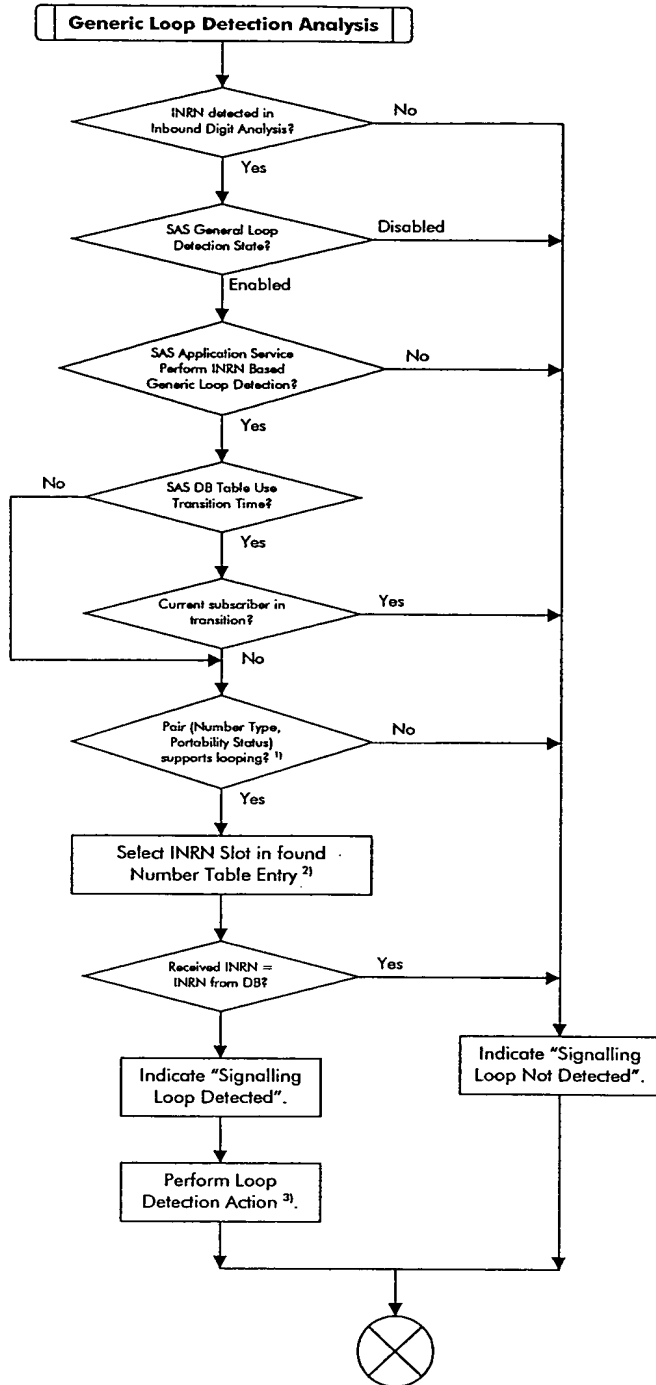Indicate "Signalling Loop Not Detected".

⊗

Fig. 6

[1] This information is taken from the Loop Detection Status and Action Configuration Table.
[2] The correct slot of INRN is taken from the Configuration Data Item SasAppliationServiceSoltIdOfInrn.
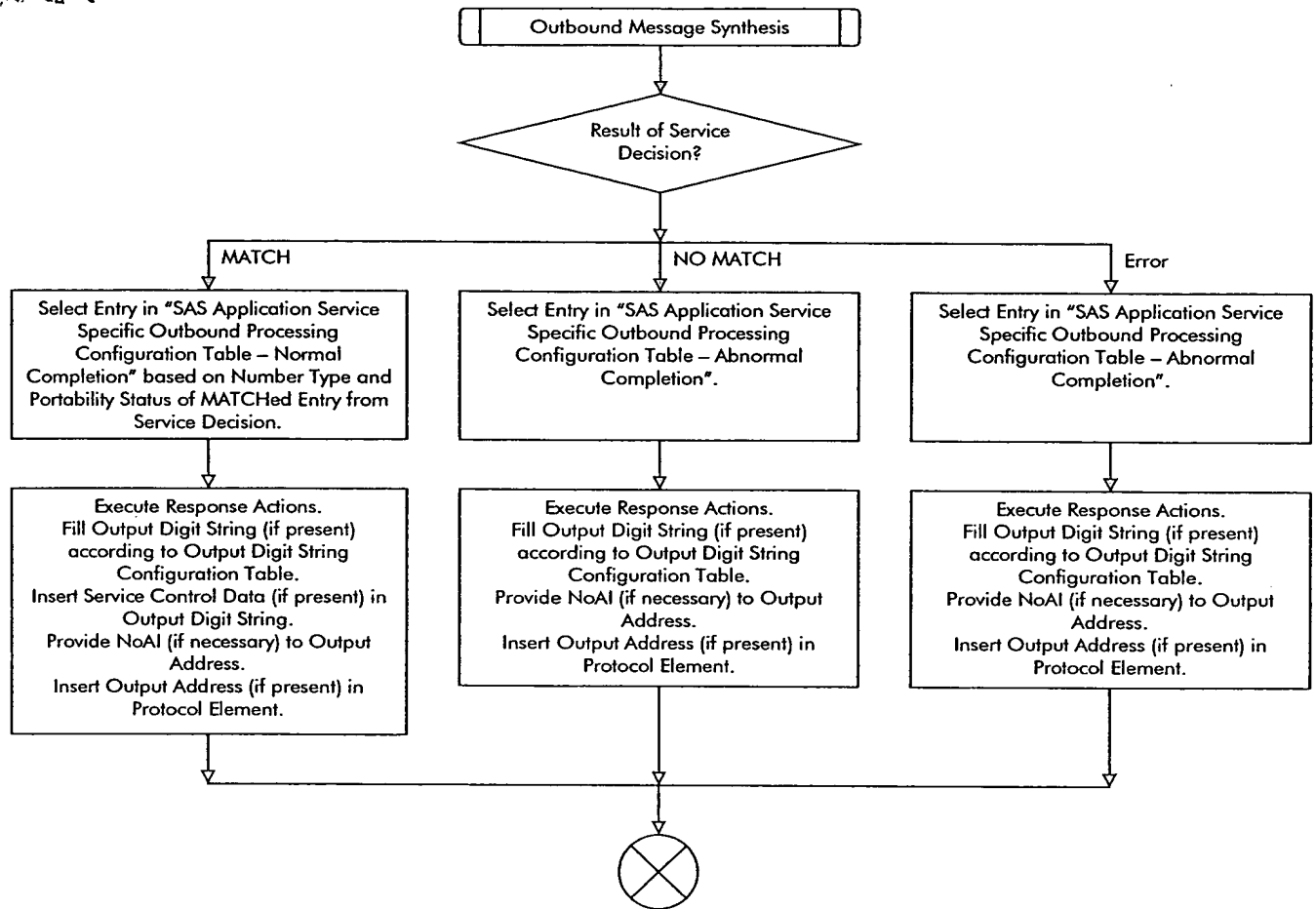[3] This information is taken from the Loop Detection Status and Action Configuration Table.

```
┌─────────────────────────────────┐
│     Outbound Message Synthesis   │
└─────────────────────────────────┘
                  │
                  ▼
         ◇ Result of Service ◇
           ◇ Decision?  ◇
```

MATCH

Select Entry in "SAS Application Service Specific Outbound Processing Configuration Table – Normal Completion" based on Number Type and Portability Status of MATCHed Entry from Service Decision.

Execute Response Actions.
Fill Output Digit String (if present) according to Output Digit String Configuration Table.
Insert Service Control Data (if present) in Output Digit String.
Provide NoAI (if necessary) to Output Address.
Insert Output Address (if present) in Protocol Element.

NO MATCH

Select Entry in "SAS Application Service Specific Outbound Processing Configuration Table – Abnormal Completion".

Execute Response Actions.
Fill Output Digit String (if present) according to Output Digit String Configuration Table.
Provide NoAI (if necessary) to Output Address.
Insert Output Address (if present) in Protocol Element.

Error

Select Entry in "SAS Application Service Specific Outbound Processing Configuration Table – Abnormal Completion".

Execute Response Actions.
Fill Output Digit String (if present) according to Output Digit String Configuration Table.
Provide NoAI (if necessary) to Output Address.
Insert Output Address (if present) in Protocol Element.

⊗

Fig. 7